

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) Capture device of the orientation of a solid comprising:
 - a sensor (~~10a, 10b~~) of angular position, capable of being affixed to the solid and of supplying at least a measuring datum (Θ_m) representative of the orientation of the solid, wherein the sensor of angular position being sensitive to at least one of gravity or a magnetic field;
 - calculation means (14) for generating test data (Θ_t) representative of a random estimated orientation of the solid[[,] ; and
 - means (18) for modifying ~~modification~~ of the random estimated orientation of the solid by confrontation of the solid orientation that the measuring datum represents and test data.

2. (Currently Amended) Device as claimed in claim 1, wherein the modification means (18) of the random estimated orientation comprise a first comparator (12) connected to the sensor (~~10a, 10b~~) and to the calculation means (14) for generating test data, for receiving the measuring datum and at least a test datum, and for establishing at least a difference ($\Delta\Theta$) between the test datum and the solid orientation that the measuring datum represents.

3. (Currently Amended) Device as claimed in claim 2, further comprising a second comparator with a threshold (~~16~~) for comparing the difference established by the first comparator (12) to a threshold value (~~th~~) and to validate the random estimated orientation, when the difference established by the first comparator is less than the threshold value.

4. (Cancelled)

5. (Currently Amended) Device as claimed in claim [[4]] 1, wherein the sensor sensitive to gravity comprises at least an accelerometer and the sensor sensitive to a magnetic field comprises at least a magnetometer.

6. (Currently Amended) Device as claimed in claim [[4]] 1, comprising two sensors each having three axes of sensitivity.

7. (Currently Amended) Device as claimed in claim 1, wherein the calculation means ~~(14)~~ for generating test data comprise a calculator for calculating test data as a function of a random estimated orientation, and as a function of parameters characteristic of a response of the angular position sensor.

8. (Original) Device as claimed in claim 7, wherein the calculator is localised on the solid.

9. (Currently Amended) Device as claimed in claim 1, wherein the modification means ~~(18)~~ of the random estimated orientation and/or the calculation means for generating a test datum comprise a calculator for establishing a new estimated orientation and/or a new test datum according to an error gradient descent method.

10. (Original) Device as claimed in claim 9, wherein the calculator is localised on the solid.

11. (Currently Amended) ~~A motion capture device of the rotation of a solid comprising a capture device of the orientation;~~ Device as claimed in claim 1 and further comprising means (M) for registering successive estimations of the orientation of the solid.

12. (Currently Amended) Device as claimed in claim 11, wherein the means (M) for registering are localised on the solid.

13. (Currently Amended) Device as claimed in claim 11, comprising a timer (H) for rating registration of the successive estimations of the orientation of the solid.

14. (Currently Amended) A process for estimation of the orientation of a solid comprising: ~~the following stages:~~

a) capture of measuring data originating from at least one angular position sensor (~~10a, 10b~~) and the establishment of a test datum representative of a random estimated orientation of the solid, the sensor of angular position being sensitive to at least one of gravity or a magnetic field;

b) confrontation of the test datum and the solid orientation that the measured datum represents; and ~~[[,]]~~

c) establishment of a new test datum representative of a new estimated orientation of the solid, corrected as a function of the preceding confrontation,

~~d) repetition of stages b) and c).~~

15. (Currently Amended) Process as claimed in claim 14, wherein the capture of measuring data and the confrontation of the test datum stages b) and c) are repeated until the confrontation

reveals a difference between the test datum and the measuring datum less than a determined threshold.

16. (Currently Amended) Process as claimed in claim 14, wherein, ~~during stage e~~, correction calculation is made according to a error gradient descent method during the establishment of the new test datum.

17. (Currently Amended) Process as claimed in claim 14, wherein confrontation between the test data and the solid orientation that the measuring datum represents comprises the establishment of difference data ($\Delta\theta$) between successive test data and the solid orientation that the measuring datum represents.

18. (Currently Amended) ~~Process of motion capture of a solid, characterised in that the process~~ as claimed in claim 14 wherein the capture, the confrontation and the establishment is repeated with successive measuring data.

19. (Cancelled)

20. (Cancelled)